MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BTQ3094 – TQM FOR MANAGERS

(All sections / Groups)

28 FEBRUARY 2020

9.00 a.m. – 11.00 a.m.

(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **Five (5)** pages (including the cover page).

2. Answer **ALL** questions. The marks distributions are given in parentheses.

3. Write all your answers in the **Answer Booklet** provided.

QUESTION 1

(a) The statement has been made that "A quality system is not just a series of boxes and arrows. It is an interconnected, interdisciplinary network of people, technology, procedures, markets, customers, facilities, legal requirements, reporting requirements, and assets that interact to achieve an end." What does this statement mean to you?

[8 Marks]

(b) A Quality Manager at an Auto Body Shop visually inspects 25 re-sprayed vehicles each week for aesthetics. The Quality Manager will reject any car if the finish is blemished. Following are results from 10 weeks of inspections.

Week	1	2	3	4	5	6	7	8	9	10
Defective	3	6	2	6	5	4	3	9	14	2

(i) Given these results, using a p chart, determine if the process is stable.

Hint $CL_p = \bar{p} \pm 3\sqrt{[\frac{(\bar{p})(1-\bar{p})}{n}]}$

[8 Marks]

(ii) What would need to be done to improve the process?

[4 Marks]

[Total: 20 Marks]

QUESTION 2

(a) How do the Japanese and American approaches to quality management differ? What factors have shaped those differences and what evidences the differences in quality values?

[10 Marks]

(b) Discuss the contributions of W. Edwards Deming to quality thinking.

[10 Marks]

[Total: 20 Marks]

QUESTION 3

(a) The design for maintainability concept states that a product should be designed in a way that makes it easy for a consumer to maintain it. What product attributes make it easy for a product to be serviced or maintained?

[10 Marks]

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(b) Describe the concept of benchmarking. Provide an example of how a restaurant that you are familiar with could use benchmarking to improve its performance.

[10 Marks]

[Total: 20 Marks]

QUESTION 4

(a) What are the three major realities in service that affect the approaches in quality adopted by service providers?

[10 Marks]

(b) Outline the generic process for performing self-assessment.

[10 Marks]

[Total: 20 Marks]

QUESTION 5

(a) Read the following case and answer the given questions.

Chaparral Steel: Achieving High Quality through a Commitment to Both External and Internal Customers

Chaparral Steel Company, located near Dallas, Texas, is a steel mini mill producing a variety of steel products by recycling scrap steel. The company, founded in 1973, sells to a diverse group of industries, including construction, railroad, defense, mobile homes, and appliances. Chaparral has received a great deal of attention in the media and among business leaders because it has been relatively successful in an industry beset by a multitude of problems. Much of the company's success can be attributed to a focus on customer service and product quality through a commitment to both its external customers and internal customers.

To ensure that external customers are satisfied, Chaparral routinely conducts customer surveys, sends employees on site visits, and listens carefully to customer comments and suggestions. In addition, the company practices a number of quality-minded manufacturing techniques to reduce defect rates and prevent problems from occurring. Chaparral is very efficient, and new ideas and manufacturing techniques are transferred very quickly to the factory floor. As a result, the company remains on the leading edge of steel manufacturing technology and can adapt as customer requirements change. The company continues to improve its products and operations by benchmarking against world-class producers and giving employees paid sabbaticals where they learn about new work practices and technologies from academic institutions and industry leaders.

Although these efforts are commendable, the company's commitment to its internal customers is equally important. At any one time, approximately 85% of Chaparral's employees are enrolled in some type of class ranging from electronics to Spanish. If the training is off-site, the company reimburses employees for their tuition costs. In the plant,

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the majority of the employees are cross-trained, which enhances their individual job skills. The company benefits through consistency in operations because one employee can step in and perform the job of another employee if the need arises.

In many instances, Chaparral's commitment to its employees directly contributes to its employees' ability to contribute to company objectives of customer service and product quality. All of Chaparral's employees, from the CEO to the maintenance crew, have business cards they can give to customers to promote interaction. Frontline employees are periodically sent on customer site visits to answer questions, observe the customer's manufacturing process, or simply to see how Chaparral products perform. Every employee is salaried, and merit increases are tied to a variety of factors, including individual performance, versatility of skills, and training credits earned through the company's continuing education program. All these practices serve the dual purpose of increasing quality while at the same time enriching the jobs of the employees. Through its commitment to its internal customers, Chaparral has obtained some remarkable results. For example, a group of Chaparral employees recently developed a proprietary system for manufacturing wide-flange steel beams resulting in a substantial cost savings for the company. Chaparral credits its training program, along with individual effort on the part of its employees, for this accomplishment.

Overall, Chaparral's commitment to both its internal and external customers has produced impressive results, particularly as they relate to firm productivity and product quality. The company's daily absentee rate is less than 1%, and the average yearly turnover rate is only 5%. These rates are far lower than industry averages. These low rates provide for continuity in operations. Partially as a result of this, Chaparral produces steel at a lower cost per ton than its rivals. At Chaparral, it takes 1.4 hours to produce a ton of steel, as compared with an average of 2.4 hours per ton at other steel mini mills. Chaparral was awarded the Japanese Industrial Standard Certification on its general structural steel products, becoming the only steel company outside Japan given that recognition. Similarly, Chaparral is the only steel company of its type to be certified by the American Institute of Mining, Metallurgical, and Petroleum Engineers to manufacture its products for nuclear applications.

(Source: Foster, S.T. (2013) Managing Quality: Integrating the Supply Chain, 5th ed., Pearson)

Required

(i) For a company like Chaparral Steel, why is a commitment to both its internal and external customers necessary?

[6 Marks]

(ii) As mentioned in the case, Chaparral periodically sends front-line employees on trips to visit the manufacturing sites of the company's customers. In your opinion, is this a justifiable expense? Why or why not?

[6 Marks]

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(b) What is the relationship between quality and ethics?

[8 Marks]

[Total: 20 Marks]

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